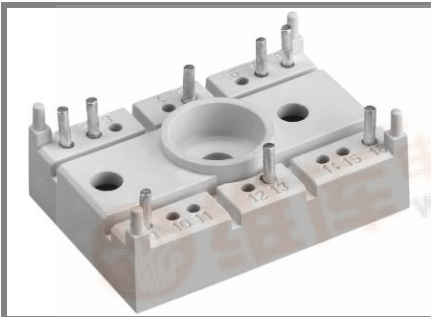


SK 40 GB 123



SEMITOP® 2

IGBT Module

SK 40 GB 123

Preliminary Data

Features

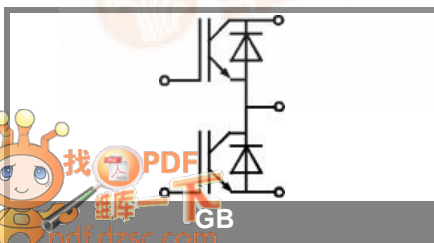
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N-channel homogeneous silicon structure (NPT-Non punch-through IGBT)
- Low tail current with low temperature dependence

Typical Applications

- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS

Absolute Maximum Ratings		$T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V_{CES}		1200	V	
V_{GES}		± 20	V	
I_C	$T_s = 25\text{ (80) }^\circ\text{C}$;	40 (27)	A	
I_{CM}	$t_p < 1\text{ ms}$; $T_s = 25\text{ (80) }^\circ\text{C}$;	80 (54)	A	
T_j		- 40 ... + 150	$^\circ\text{C}$	
Inverse/Freewheeling CAL diode				
I_F	$T_s = 25\text{ (80) }^\circ\text{C}$;	48 (34)	A	
$I_{FM} = -I_{CM}$	$t_p < 1\text{ ms}$; $T_s = 25\text{ (80) }^\circ\text{C}$;	96 (68)	A	
T_j		- 40 ... + 150	$^\circ\text{C}$	
T_{stg}		- 40 ... + 125	$^\circ\text{C}$	
T_{sol}	Terminals, 10 s	260	$^\circ\text{C}$	
V_{isol}	AC 50 Hz, r.m.s. 1 min. / 1 s	2500 / 3000	V	

Characteristics		$T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{CE(sat)}$	$I_C = 30\text{ A}$; $T_j = 25\text{ (125) }^\circ\text{C}$		2,5 (3,1)	3 (3,7)	V
$V_{GE(th)}$	$V_{CE} = V_{GE}$; $I_C = 0,0012\text{ A}$	4,5	5,5	6,5	V
C_{ies}	$V_{CE} = 25\text{ V}$; $V_{GE} = 0\text{ V}$; 1 MHz		2		nF
$R_{th(j-s)}$	per IGBT per module			0,85	K/W
under following conditions:					
$t_{d(on)}$	$V_{CC} = 600\text{ V}$; $V_{GE} = \pm 15\text{ V}$		35		ns
t_r	$I_C = 30\text{ A}$; $T_j = 125\text{ }^\circ\text{C}$		45		ns
$t_{d(off)}$	$R_{Gon} = R_{Goff} = 20\text{ }\Omega$		250		ns
t_f			45		ns
$E_{on} + E_{off}$	Inductive load		3,8		mJ
Inverse/Freewheeling CAL diode					
$V_F = V_{EC}$	$I_F = 30\text{ A}$; $T_j = 25\text{ (125) }^\circ\text{C}$		2 (1,8)		V
$V_{(TO)}$	$T_j = (125)\text{ }^\circ\text{C}$		(1)	(1,2)	V
r_T	$T_j = (125)\text{ }^\circ\text{C}$		(53)	(73)	m Ω
$R_{th(j-s)}$				1	K/W
under following conditions:					
I_{RRM}	$I_F = 30\text{ A}$; $V_R = 600\text{ V}$		32		A
Q_{rr}	$di_F/dt = -400\text{ A}/\mu\text{s}$		5,4		μC
E_{off}	$V_{GE} = 0\text{ V}$; $T_j = 125\text{ }^\circ\text{C}$		1,2		mJ
Mechanical data					
M1	mounting torque			2	Nm
w			21		g
Case	SEMITOP® 2		T 32		



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